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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/987,793

Applicant(s)

KLEINBERGER ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5-16 and 19-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-16 and 19-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on March 7, 2003, which has been entered as paper number 8.
- By this amendment, the applicant has amended claims 1, 5, 6, 7, 13, 14, 16 and 21, has canceled claims 2, 3, 4, 17 and 18 and has newly added claims 22-31.
- Claims 1, 5-16, and 19-31 remain pending in this application.
- The rejections to claims 14-15 and 21 under 35 USC 112, first paragraph, set forth in the previous Office Action are withdrawn in response to applicant's amendment.
- The rejections to claims 1-6, 7-13, 14-15, 16-20 and 21 under 35 USC 112, second paragraph, set forth in the previous Office Action are withdrawn in response to applicant's amendment.
- The applicant has **failed** to response to the previous Office Action, dated April 23, 2002, within the statutory response time and the application has been abandoned on March 3, 2003. A petition for reviving the application has been filed on March 7, 2003 and has been granted on March 20, 2003.

Response to Amendment

1. The amendment filed March 7, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the newly added claims 27, 30 and 31 recite a system for three dimensional viewing comprises just a parallax barrier. The specification fails to give support for creating three-dimensional viewing by simply having a parallax barrier. The newly added claims 22 and 24 recite that the switchable elements are switchable light rotating elements. The specification while giving support for the light rotating elements to be in conjunction with two polarization layers to act as the switching element in the shutter it

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does not give the support for the rotating elements to be the shutter. The light rotating elements by themselves cannot give shutter function.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 22, 24, 27, 30 and 31 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The reason for rejection based on the newly added matters are set forth in the paragraph above.

4. **Claims 22, 24, 27, 30 and 31 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification **fails** to teach how could the light rotating elements be able to give shutter function by itself. The two polarizing sublayers are essential to cooperate with the light rotating elements to enable the shutter function as claimed and disclosed in the specification.

The specification also **fails** to teach how could three-dimensional viewing be provided by simply having parallax barriers.

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5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. **Claims 19, 20 and 31 are rejected under 35 U.S.C. 112, second paragraph**, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 19 and 20 are indefinite since they depend from a canceled based claim (claim 17).

The phrase "IPD" recited in claim 31 is confusing and indefinite since it is not defined in the claim. This makes the scope of the claim unclear.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. **Claims 1, 6, 14, 15, 21 and newly added claims 26-31 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Isono et al (PN. 5,315,377).**

Claims 1, 6, 14, 15 and 21 have been significantly amended and new grounds of rejection are stated as follows.

Isono et al teaches a *three-dimensional image display device* that is comprised of a *liquid crystal panel* (46), serves as the *display*, for displaying right eye and left eye images in an alternative fashion within a frame and a *liquid crystal panel* (28) for generating *parallax barrier*, that serves as the *shutter layer*, having alternative first and second *subareas* that are operated to be opaque (first phase of

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operation) and transparent (second phase of operation) such that the right eye image and left eye image is directed to right eye and left eye of an observer *respectively* to enable stereoscopic image display, (please see Figure 1, column 4). Isono et al teaches that the image display device also comprises a computer (20), drivers and controller means for synchronizing the display of the image and the generation of the parallax barrier, (please see Figure 1 and columns 5-6).

Claims 1, 14 and 21 have been amended to make the layer of shutter means having multiple switchable element and the subareas of the shutter includes a *plurality of contiguous* element of the switchable elements. Isono et al teaches that the parallax barrier is generated by a liquid crystal panel (28), which implicitly consists of a *matrix of light valve pixels* such that each of the pixels is electronically switchable. The matrix of pixels therefore serves as the *plurality of switchable shutter elements*. Isono et al also teaches that the parallax barrier comprises a plurality of stripes that is transparent and a plurality of stripes that is opaque. It is implicitly true that each of the stripes or subareas is formed by or includes a plurality of *contiguous* pixels that are switched to be either transparent or opaque.

Claim 1 has also been amended to further include the feature of having multi-line controlling switching means to select a plurality of sets of contiguous elements of the shutter element to function as the subareas. Isono et al teaches that the liquid crystal panel that implicitly consists of a plurality of switchable light valve pixels where each of the pixels is electrically switchable is controlled by the computer and driver. This means the driver and the computer serve as the multi-line controlling means for switching the pixels or shutter elements. With regard to claims 28 and 29, Isono et al teaches that the positions and the pitch size of the barrier stripes can be adjusted by the computer and the driver.

With regard to claims 6, 14, 21, and 26 Isono et al teaches to use a *head position-detecting unit* (8, Figure 1) to detect the head or eye position of the observer wherein the detected information is fed in a

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computer for computing and changing the generation of the shutter means to accommodate the variation in position of the viewer.

With regard to claims 27 and 30-31, the electronically addressable parallax barrier generated by the liquid crystal panel of Isono et al meets all the limitations of the claims. It is implicitly true that some of the pixels or the switchable elements are the same for different time and different sets, for instance, if the first set equals the third and fourth set, (as for claim 30). Isono et al teaches that the head position of observer is monitored and as the lateral positions of the observer change by the interval between the pupils the positions of the parallax barrier stripes also changes accordingly, (please see column 2).

This reference has therefore anticipated the claim.

9. Claims 1 and 22-23 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Morishima et al (PN. 5,875,055).

Morishima et al teaches a *stereoscopic image display apparatus* that is comprised of a *liquid crystal display* (1) for displaying a *frame having first and second subregions for alternatively presenting left eye image and right eye image*, a *polarizer*, serves as the *first light polarizing sublayer*, within the liquid crystal display for predetermined polarize the image light from the display, a *phase shifter member* (30), comprising *light rotating elements*, and a *polarization optical element* (2), serves as the *second light polarizing sublayer*, that together serve as the *shutter means* for allowing the right image light and left image light to reach observer's right eye and left respectively, (please see Figure 1 and column 5).

Morishima et al teaches that the apparatus further comprises an *image processing means* (3) that serves as the *coordinating element* that controls the synchronization between the display of the image on the display and the switching of the phase shift member (3), therefore the shutter means, to enable the stereoscopic display.

Claim 1 has been amended to make the layer of shutter means having multiple switchable element and the subareas of the shutter includes a plurality of contiguous element of the switchable elements. **Claim 1 has also been amended** to include the feature of having multi-line controlling switching means to select a plurality of sets of contiguous elements of the shutter element to function as the subareas. **Morishima et al** teaches that the phase shifter member is a π -cell and is comprised of a **plurality of on and off switchable phase shifting regions** (30-y1 to 30-y5 in Figures 7B and 8B), serves as the multiple switchable element, such that the polarization state of the light would be rotated or not rotated in OFF or ON state in the manner as demonstrated in Figures 3B and 3A. In Figures 5, 7B and 8B, **Morishima et al** teaches explicitly that phase shifting subareas, that eventually gives rise to transparent or opaque subareas may include a *plurality of contiguous* phase shifting regions. **Morishima et al** further teaches that the each region of the phase shifter member or π -cell could be *independently controlled* by the π -cell drive circuit (31) as demonstrated in Figure 5, where it serves as the *multi-line controlling switching means*, (please see column 10, lines 54-60).

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. **Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Isono et al.**

The three-dimensional image display with parallax barrier generated by a liquid crystal panel taught by Isono et al as described for claim 1 above has met all the limitations of the claim. This

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reference however does not teach explicitly that there are additional layers of shutter but such modification is considered to be obvious matter of design choice to one skilled in the art for the purpose of changing the design or for the benefit of providing additional switching means for the shutter means.

12. Claim 7, 13, 16 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Morishima et al.

Claims 7 and 16 has been amended significantly and it is rejected for the reasons stated below.

The stereoscopic image display apparatus taught by Morishima et al, having a polarizer in the LCD display and a polarization optical element, served as the first and second light polarizing sublayers, and a phase shift member having *multiple* on and off switchable polarization rotating regions as shutter means, (with details described for **claim 1 above**), has met all the limitations of the claims.

Claims 7 and 16 have been amended to make the layer of shutter means having multiple switchable element and the subareas of the shutter includes a plurality of contiguous element of the switchable elements. Morishima et al teaches that the phase shifter member is a π -cell and is comprised of a **plurality of on and off switchable phase shifting regions** (30-y1 to 30-y5 in Figures 7B and 8B), serves as the plurality of light rotating, such that the polarization state of the light would be rotated or not rotated in OFF or ON state in the manner as demonstrated in Figures 3B and 3A. In Figures 5, 7B and 8B, Morishima et al teaches explicitly that phase shifting subareas, that eventually gives rise to transparent or opaque subareas may include a plurality of contiguous phase shifting regions. Morishima et al further teaches that the each region of the phase shifter member or π -cell could be *independently controlled* by the π -cell drive circuit (31) as demonstrated in Figure 5, where it serves as the *multi-line controlling switching means*, (please see column 10, lines 54-60).

With retard to claims 13 and 19, this reference does not teach explicitly that there are additional layers of shutter however such modification is considered to be obvious matter of design choice to one

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skilled in the art for the purpose of changing the design or for the benefit of providing additional switching means for the shutter means.

With regard to claims 7 and 16, this reference teaches that the phase shifter π -cell is controlled in a multi-line controlling switching fashion using a π -cell drive circuit but it does not teach explicitly to use a computing means to utilize the drive circuit. However this feature is either inherently met by the disclosure in order for the drive circuit performs the cited function in the claims or an obvious modification to one skilled in the art for the benefit of using a computing means to more accurately control the drive circuit.

13. Claims 14 and newly submitted claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Morishima et al in view of the patent issued to Isono et al.

The stereoscopic image display apparatus taught by Morishima et al, having a polarizer in the LCD display and a polarization optical element, served as the first and second light polarizing sublayers, and a phase shift member having multiple on and off switchable polarization rotating regions as shutter means, (with details described for claims 1), has met all the limitations of the claims.

Claim 14 has been amended to make the layer of shutter means having multiple switchable element and the subareas of the shutter includes a plurality of contiguous element of the switchable elements. Morishima et al teaches that the phase shifter member is a π -cell and is comprised of a **plurality of on and off switchable phase shifting regions** (30-y1 to 30-y5 in Figures 7B and 8B), serve as the switchable elements, such that the polarization state of the light would be rotated or not rotated in OFF or ON state in the manner as demonstrated in Figures 3B and 3A. In Figures 5, 7B and 8B, Morishima et al teaches explicitly that phase shifting subareas, that eventually gives rise to transparent or opaque subareas, may include a plurality of contiguous phase shifting regions. Morishima et al further teaches that the each region of the phase shifter member or π -cell could be *independently controlled* by

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the π -cell drive circuit (31) as demonstrated in Figure 5, where it serves as the *multi-line controlling switching means*, (please see column 10, lines 54-60).

The phase shifter π -cell is controlled in a multi-line controlling switching fashion using a π -cell drive *circuit* but it does not teach explicitly to use a computing means to utilize the drive circuit. However this feature is either inherently met by the disclosure in order for the drive circuit to perform the cited function in the claims or an obvious modification to one skilled in the art for the benefit of using a computing means to more accurately control the drive circuit.

This reference further does not teach explicitly to use means for *sensing* the position of the viewer. Isono et al teaches to use a *head position-detecting unit* (8, Figure 1) to detect the head or eye position of the observer wherein the detected information is fed in a computer for changing the generation of the shutter means. It would then have been obvious to one skilled in the art to apply the teachings of Isono et al to use a head position detecting unit and a computer means to calculate the shift of the position of the observer to adjust the generation of the shutter means for the benefit of providing a stereoscopic image display that accommodates the change of the position of the observer.

14. Claims 8-12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Morishima et al as applied to claims 7 and 16 above, and further in view of the patent issued to Isono et al.

The stereoscopic image display apparatus taught by Morishima et al, having a polarizer in the LCD display and a polarization optical element, served as the first and second light polarizing sublayers, and a phase shift member having multiple on and off switchable polarization rotating regions as shutter means, (with details described for claims 7 and 16), has met all the limitations of the claims.

This reference further does not teach explicitly to use means for sensing the position of the viewer. Isono et al teaches to use a *head position-detecting unit* (8, Figure 1) to detect the head or eye

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position of the observer wherein the detected information is fed in a computer for changing the generation of the shutter means. It would then have been obvious to one skilled in the art to apply the teachings of Isono et al to use a head position detecting unit and a computer means to calculate the shift of the position of the observer to adjust the generation of the shutter means for the benefit of providing a stereoscopic image display that accommodates the change of the position of the observer.

Double Patenting

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. **Claims 7-11, 14-15, and 16-20 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 4, 6 and 10 of U.S. Patent No. 5,822,117.** Although the conflicting claims are not identical, they are not patentably distinct from each other because they each disclose a stereoscopic image display using first and second polarizing sublayers and a layer of on and off switchable light rotating means as the shutter means.

Terminal Disclaimer

17. The terminal disclaimer filed on March 7, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US patent 6,252,707 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Response to Arguments

18. Applicant's arguments filed on March 7, 2003 have been fully considered but they are not persuasive. The newly amended claims and newly submitted claims have been fully considered and they are rejected for the reasons stated above.

19. In response to applicant's arguments concerning the *plurality* of switchable shutter elements, the applicant is respectfully advised to review the cited references, (Isono et al and Morishima et al), wherein **both** of the references **teach** to include a **plurality** of switchable shutter elements in the shutter means. In particular, **Isono** et al teaches the parallax barrier is generated by liquid crystal panel that implicitly consists of a plurality of electrically switchable light valve pixels, (applicant is referred to US patent 5,706,062 and standard textbook of the liquid crystal panel). **Morishima** et al teaches explicitly that the phase shifter member comprises a plurality of phase shifting regions, (as shown in Figures 5, 7B and 8B).

20. In response to applicant's argument concerning the double patenting rejection, the applicant is respectfully reminded that the terminal disclaimer was **NOT** filed for overcoming the double patenting rejection with respect to US Patent 5,822,117. The rejection therefore still stands.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US patent issued to Stolov (PN. 5,706,062) teaches a shutter comprises of a liquid crystal panel having a plurality of electrically switchable light valve pixels.

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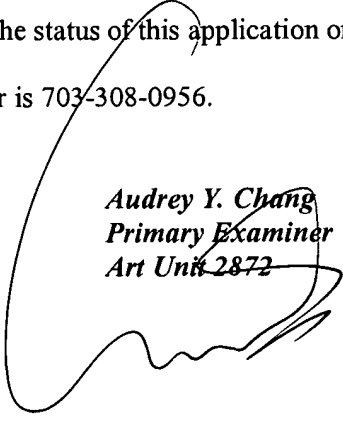
22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
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A. Chang, Ph.D.